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CEOS IDN Newsletter

MAY 2010, ISSUE 28

INSIDE THIS ISSUE:

A Message from the New WGISS Chair: Dr. Pakorn Apaphant

Dr. Pakorn Apaphant

As a small part of this proactive Working Group, I feel that, like other years in the past, we very much enjoyed working together to reach our common goal last year. Our group had a chance to contribute to a number of GEO tasks. The International Directory Network (IDN) Interest Group can be considered one of our key players to keep WGISS moving efficiently to serve this community. We can simply see that CEOS Virtual Constellation (VC) Portals have been developed under IDN prototypes. Several demonstrable outcomes were illustrated to decision makers, agency leaders, and participants in both the CEOS plenary and GEO plenary. This success could definitely never be received without the full cooperation, great support from your agencies, and the strong leadership of our previous chair.

Martha Maiden and I had a chance to attend the CEOS Plenary held in Phuket, Thailand. On this occasion, as mentioned above, we had a chance to demonstrate the CEOS VC portals developed by the Plenary participants. During the WGISS presentations, Martha reported to the Plenary that for an entire year WGISS actively supported a number of GEO tasks. She also touched on the current status of other activities, such as network security, sensor webs, data quality, CEOS WGISS Integrated Catalog (CWIC), and flood monitoring using GRID and sensor web technologies. The new WGISS structure was summarized, and the WGISS Five Year Plan was formally endorsed by the Plenary as well. In addition, I am delighted to inform you that Martha noted at the Plenary that she will remain engaged in WGISS and looks forward to working with us.

I therefore would like to take this opportunity to express my sincere appreciation to our previous chair, Martha Maiden of NASA, who greatly contributed her valuable resources to this Working Group during her tenure. I believe we all look forward to continuing to work with her as well.

Ms. Martha Maiden, Outgoing WGISS Chair

and *Dr. Darasri Dowreang, 2009 CEO Chair*

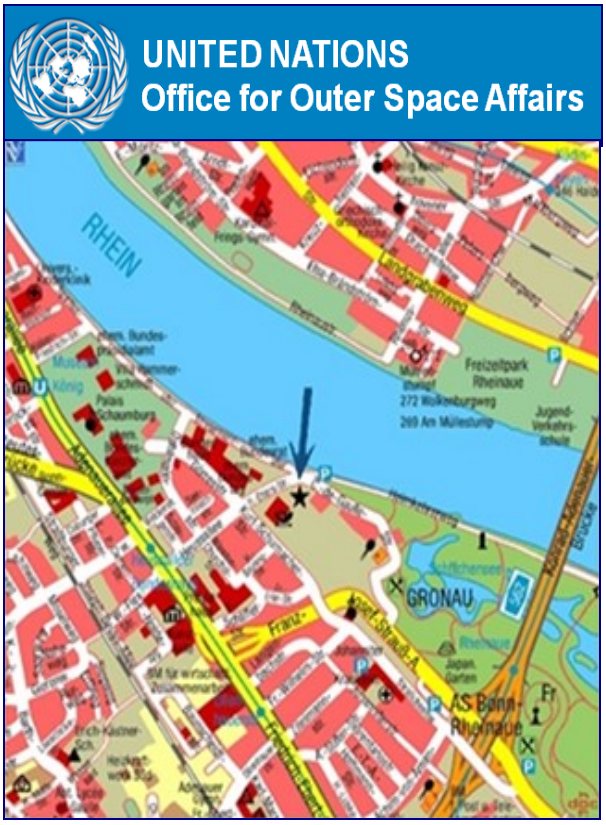
For the year 2010, we will continue our important role emphasizing the same theme as last year. We will support CEOS responding to GEO. Our vice Chair, Satoko Miura, will be coordinating with the IDN on the GEO issues. To ensure that our outcomes will fit well with the CEOS goals, we will work very closely with CEOS and the Strategic Implementation Team (SIT). I believe that our super woman, Satoko, will also be able to help me on this mission. I will focus in strengthening internal coordination. Recommendations from our user vice chair should be utilized to make sure that we can best serve EO users worldwide. New promising projects will be promoted. Together, we will work with Vice Chairs to develop or improve the capability of portals. We will also try our best to continue our support to the Data Democracy program. It looks like I may promise too much, but I believe that we will enjoy achieving these goals together. Thank you.

Upcoming WGISS-29 Meeting
May 17-21, 2010

Mr. Lorant Czaran, Office Head

United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)

The WGISS-29 meeting will be held at the
United Nations – Langer Eugen:
Hermann-Ehlers Str. 10
53113 - Bonn, Germany



WGISS-29 Meeting Location

The WGISS-29 Meeting will be hosted by the United Nations Office for Outer Space Affairs (UNOOSA)/United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) in Bonn, Germany, during the week of May 17-20, 2010.

Additional information about the WGISS-29 meeting can be found online here:
www.un-spider.org/wgiss29

The United Nations offers excellent conferencing facilities, as well as a canteen and a cafeteria with international cuisine. Additional rooms will be accessible for parallel sessions and discussion groups.

Bonn: The City of Ancient Treasures

Cecilia Nelson and Folami Duncan
(2009 Summer Interns)

Home of the upcoming WGISS-29 meeting, the historically rich city of Bonn, Germany is a wonderful place to visit and has a rich history. The scenic city offers many tourist attractions that are definitely worth a visit.

Beethoven's Home

Bonn, Germany was the capital of West Germany from 1949-1990. Although it is no longer the capital city, it remains a center of politics and administration. Over half of all government jobs are located in Bonn.

One of the most popular tourist attractions to visit in Bonn is the home of the famous composer Ludwig van Beethoven. Within the city, you'll have the chance to view Beethoven's precious portraits, grand piano, and string instruments. You can also visit La Redoute, which is a classic building and home to many of Bonn's concerts and other functions. Beethoven also once performed here.

There are many other attractions to explore, such as the beautiful scenery of the Poppelsdorfer Schloss Botanical Gardens. You can also take advantage of the many popular museums in Bonn.

The museums range from the Bonn Art Museum (**Kunstmuseum Bonn**) to the greatest zoological museum in Germany (**Museum Alexander Koenig**). Bonn offers something for everyone. If you prefer to take things slowly, there are also walking tours that allow you to learn the history of the city.

Koelner Dom

The weather in Bonn is usually mild. During the winter, temperatures range from 0-5 degrees (Celsius), while average summer temperatures can range from 10 to mid 20 degrees (Celsius).

While soaking up all that Bonn has to offer, be sure to experience a taste of German cuisine. Here you can enjoy all different styles of International dining known to Europe.

Museum Alexander Koenig

Reminder:
WGISS 29
May 17-21,
Bonn, Germany

CEOS/IDN at the GEO-VI Plenary

Michael Morahan and Alicia Aleman, CEOS IDN

Over 30 exhibitors demonstrated their contributions to GEOSS at the Sixth Plenary Session of GEO held November 17-18, 2009 in Washington, DC. Exhibits focused on the progress being made on web portals and other data-sharing initiatives. As one of the exhibitors, CEOS demonstrated current and future functionalities of their contributions to the GEO System of Systems. These included the LSI Constellation Portal, Climate Diagnostics Directory, CEOS Visualization Environment (COVE), and the Atmospheric Composition Portal. For a complete list of the CEOS demos at the GEO Plenary, visit the CEOSS website at:

http://www.ceos.org/index. phpoption= com_content& view=category&layout=blog&id=161&Itemid=244

CEOS IDN metadata entries were made available to the ESRI GEO Portal for the GEO-VI demonstrations.

IDN entries will be fully integrated via a CS/W interface distributed search mechanism in May.

The ESRI Geo Portal software is also being used for the following Portal sites;

Geospatial One-Stop Portal (http;//gos2.geodata.gov/wps/portal/gos)

Abu Dhabi Spatial Data Infrastructure Public Geospatial Portal (http://geoportal.abudhabi.ae/geoportal/)

GeoNorge (GeoNorway) (http://www.geonorge.no/Portal/ptk)

ESRI GEO Portal (comments from Michael Morahan):

While browsing through the GEO-VI exhibit hall, we spoke with Marten Hogeweg, of ESRI, whom we had met at GEO-V in Romania (during my demonstration of the Climate Diagnostics Directory for CEOS). Marten was demonstrating ESRI's Geo Portal and gave me a private demonstration. The purpose of the ESRI Geo Portal (http://geoss.esri.com/geoportal/) is for discovery and use of the Earth Observation and other Geospatial Resources. The user finds data through a text search on the front page of the portal.

CEOS Near Real-Time Data Set Mock-up

Michael Morahan and Monica Holland

Sample portal page with search by platform for the Near Real-Time Data.

Near Real-Time data sets are valuable in the event of natural disasters or disease outbreaks.

Carbon Observations From Space

Satoko Miura, JAXA

The Kyoto Protocol established goals for the reduction of emissions of six key greenhouse gases. The measurement of greenhouse gases globally, using only ground-based instruments, presents many challenges.

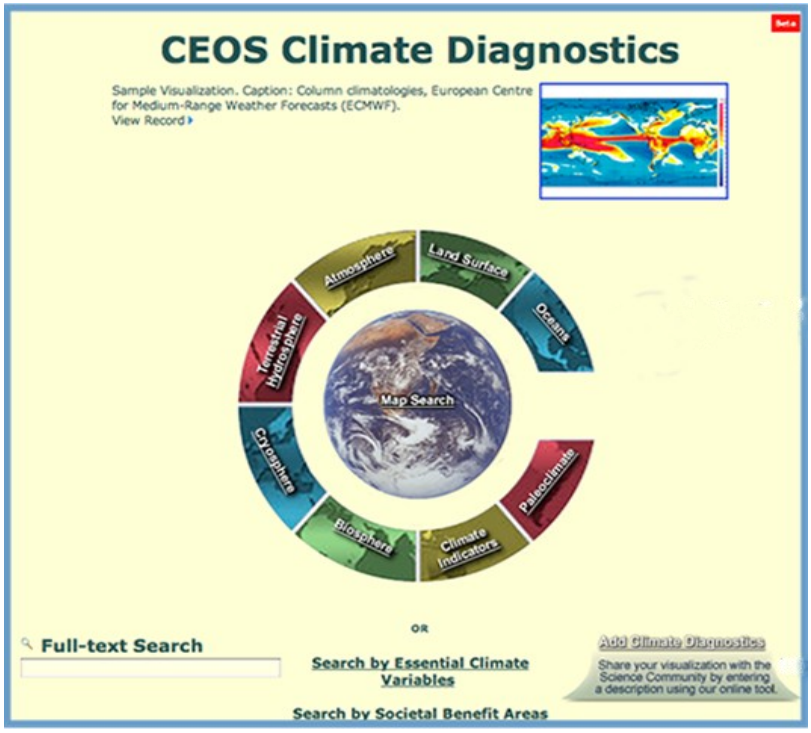
This site introduces the monitoring of greenhouse gases, especially **carbon dioxide,** using satellites by providing background information and data access links and instructions.

http://stage.tksc.jaxa.jp/jaxaigco/index.html

Climate Diagnostics Directory

Lola Olsen and Michael Morahan

The Climate Diagnostics Directory offers climate diagnostic visualizations that can be easily interpreted by decision makers. The directory is designed to enhance the Global Earth Observation Systems of Systems (GEOSS) by providing visualizations of climate trends and variability.



Users can search by Earth Science Keywords, Essential Climate Variables (ECVs), Societal Benefit Areas (SBAs), or through a full text search. Location Keywords and a Google Map are also available to query on a location of interest.

The Climate Diagnostics (CD) Directory was inspired by Mitch Goldberg, Chief, Satellite Meteorology and Climatology Division of the National Oceanographic and Atmospheric Administration (NOAA). Through the Committee on Earth Observation Satellites' (CEOS) Working Group on Information Systems and Services' International Directory Network (IDN), the IDN staff converted Goldberg's concept to a fully functional information system. The key to constructing the directory was rooted in the experience and expertise of the CEOS IDN staff, as the CD Directory was based on a structure previously designed for searching the CEOS IDN's data set and services directories. The unique requirements for Climate Diagnostics required the additional restructuring of search fields as well as visualizations pages, the XML schema, and the Metadata Entry interface. It also required two new sets of controlled keywords, along with a complete web site redesign.

The ultimate goal of this directory is to identify climate visualizations (diagnostics) that can be used to assist in the assessment of climate trends and fluctuations by scientists and decision makers for long-term societal benefit. Because the content covers all Earth Science disciplines, the complete set of the IDN's Earth Science keywords were used. All of the directory entries are also tagged by appropriate keywords from the controlled set of keywords associated with their potential "Societal Benefit Areas"; (SBAs). This vocabulary was also translated to use the Essential Climate Variables (ECVs), which can be used in an alternative search. Searches are normalized through the use of controlled keywords. Searching for visualizations by Earth Science "Topics" currently remains the primary method for identifying visualizations of interest.

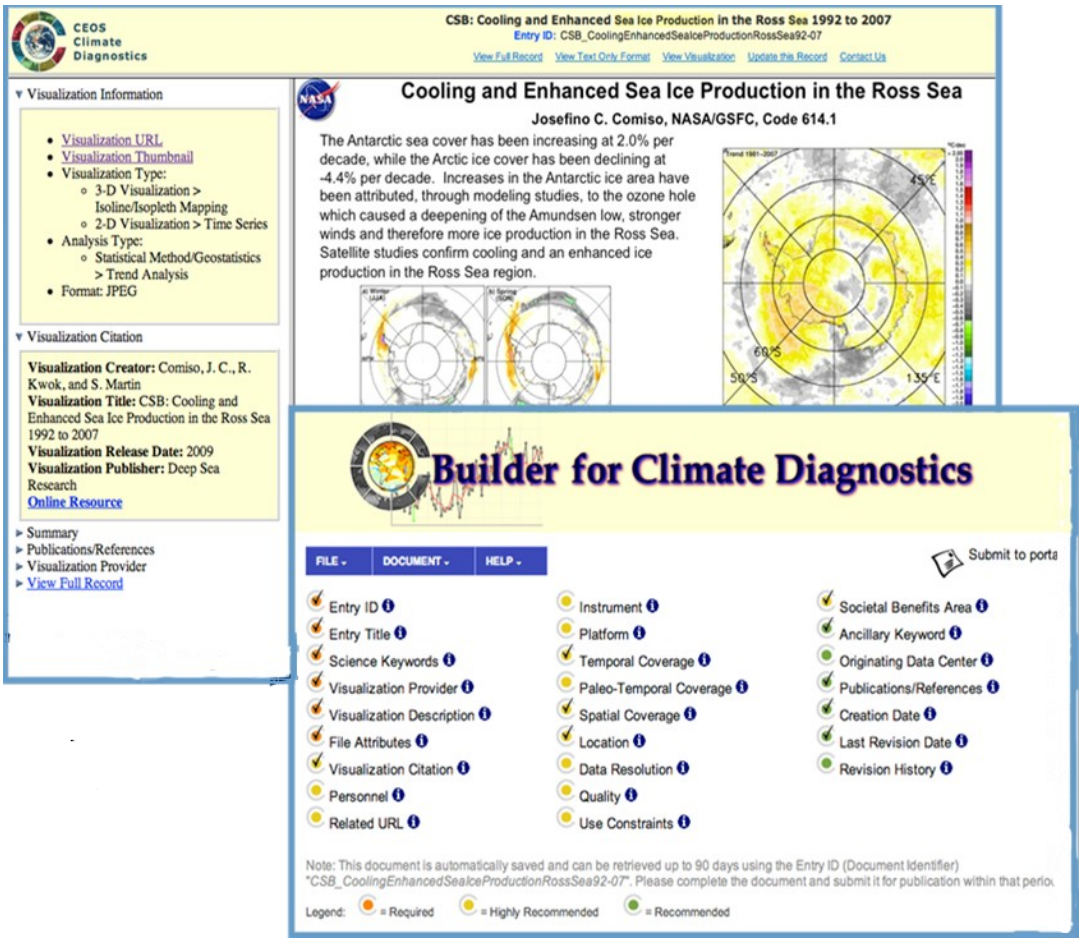
In addition, interested users may also query by location, using the map search, or by location keyword using the full-text search. As usage expands within the policy arenas, it is expected that the Societal Benefit Areas may become a primary method for identifying visualizations of interest.

One of the most attractive features of the directory is the availability of an authoring tool for creators of climate diagnostics' records to clearly document their visualizations. When using this authoring tool, contributors are guided through the process of entering the metadata (descriptive information) associated with the specific visualization. Requested information includes the "Visualization Description", the Visualization itself, and the Visualization URL. In addition, providers can characterize the contributions of Climate Diagnostic entries using controlled keywords for: (1) Visualization Type and (2) Analysis Type.

All the metadata requested may be useful – even critical – for comprehensive understanding by the end user. In addition, temporal coverage, controlled location keywords, science keywords, associated platforms and instruments, use constraints, ancillary keywords, Visualization Provider, Visualization Provider URL, Related URL, and the creation/review dates are key parameters for those seeking specific visualizations.

The Climate Diagnostics Directory was first demonstrated at CEOS WGISS-26 in Boulder, Colorado in September 2008 with approximately fifty entries. Since that time, it has been demonstrated at the GEO-V Plenary in Bucharest, Romania, at CEOS WGISS-27 in Toulouse, France, at CEOSS WGISS-28, in Pretoria, South Africa, at the Earth Science Information Partners (ESIP) and at the Standing Committee on Antarctic Data Management (SCADM) Meeting September 7-9, 2009. It has been well received by all audiences.

Choose "Add Climate Diagnostics"
to contribute visualizations.



"A Renewed Look at Distributed Data Discovery"

Presented at the 2010 Meeting of the American Meteorological Society
Atlanta, GA

Scott Ritz, GCMD Atmospheric Science Coordinator and Hoan-Vu Tran-Ho, Software Developer

One of the major challenges facing curators of metadata discovery systems, especially the GCMD, is making metadata accessible to as many collaborators as possible, while at the same time being good stewards of the metadata entrusted to the system by contributing partners. Technologies such as the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) permit metadata to be easily transferred from "systems" to the "system of systems" to the "system of systems of systems". When a document leaves the stewardship of the GCMD, preserving the quality and governance of the metadata becomes a very difficult task. Resolving this issue was the inspiration behind a presentation delivered in January 2010 at the Annual Meeting of the American Meteorological Society in Atlanta, Georgia titled: "A Renewed Look at Distributed Discovery" of Earth Science Data; Leveraging the Open Geospatial Consortium's (OGC) Catalog Services for the Web (CS/W) to serve NASA's metadata to the Global Earth Observation System of Systems (GEOSS)".

Historically, metadata harvesting has been the primary method for metadata interoperability between the GCMD and its partners. Harvesting, the electronic synchronization of metadata among systems, proved to be efficient with small metadata collections. However, incompatibilities related to heterogeneous metadata formats and the large size of collections rendered this method unmanageable. In our presentation we proposed using distributed discovery as an alternative to harvesting in order to make NASA's Earth science metadata available to the Global Earth Observing System of Systems (GEOSS).

Distributed discovery of metadata is a method whereby a software client is used to search an external server using simple, standardized queries to locate and display metadata locally that meet a specific semantic criteria. Using the OGC Catalog Services for the Web (CS/W) we leverage the Geonetwork's CS/W software to permit the three GEOSS portals to query NASA's metadata content and return search results distributed to each portal. The Geonetwork software runs on a separate server than the GCMD's production system to ensure optimal performance.

The advantage of CS/W is that metadata is made discoverable by multiple discovery services without the time-consuming process of transferring documents among systems. Therefore, GEOSS portal users will be able to discover new and updated metadata almost immediately. This is an exciting project, that if successful with GEOSS, will be applied to other collaborations. The IDN's CS/W server is currently in the testing phase with a planned release this month.

The full presentation, abstract, and a recording of the presentation can be accessed at the following link:

http://ams.confex.com/ams/90annual/techprogram/paper_164520.htm

Acknowledgements: Lola Olsen, Tom Northcutt, and Tyler Stevens for their contributions to this project.

3rd United Nations International UN-SPIDER Workshop

On October 21-23, 2009 Bonn, Germany was host city to the 3rd United Nations International UN-SPIDER Workshop on "Disaster Management and Space Technology - From Concepts to Application".

The "United Nations Platform for Space-based Information for Disaster Management and Emergency Response - UN-SPIDER" was established on December 14th, 2006 by the United Nations General Assembly. The purpose and mission of UN-SPIDER is to "*ensure that all countries and international and regional organizations have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle*". The program plans to achieve its mission by acting as the link between disaster management and space communities and by facilitating capacity building and institutional strengthening in mainly developing countries. In recent years the UN-SPIDER has already completed many Technical Advisory missions to developing countries such as Ecuador, Togo, and Namibia.

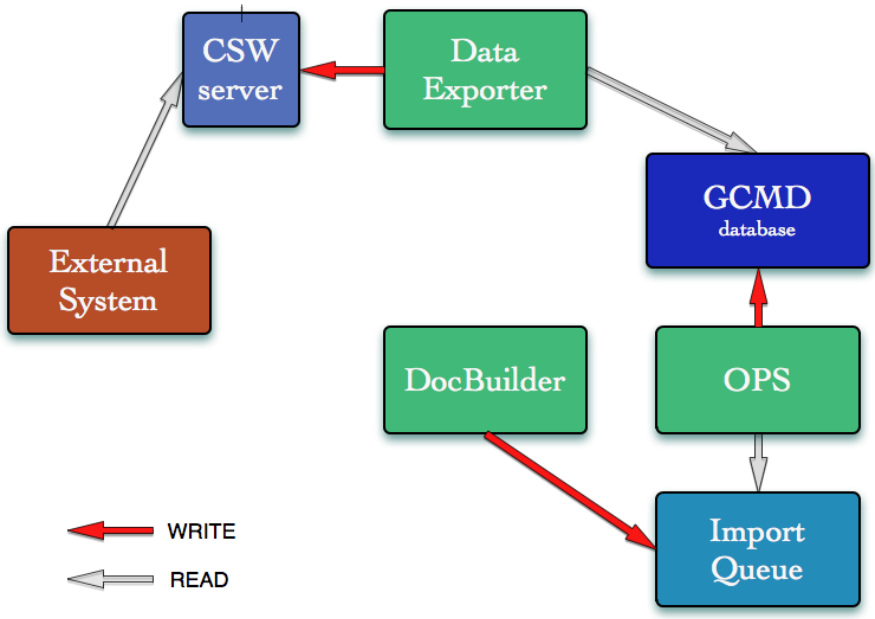
Some topics discussed during the UN Workshop were the beta-version of the UN-SPIDER Knowledge Portal, the contribution of space-based solutions to the field of Telehealth and Disaster Medicine, and the contribution of space-based technologies to mitigate the impact of and enhance adaptation to global climate change.

The UN-SPIDER Programme continues to provide support through disaster relief and disaster management all over the world in order to ensure the use and access of space technologies during all phases of disaster.

Integrating a Catalog Service for the Web (CS/W) Server Into the GCMD/IDN

Tyler Stevens, IDN Data Services Coordinator, and Hoan-Vu Tran-Ho, Software Developer

The purpose for integrating a Catalog Service for the Web (CS/W) with the IDN is to establish a simple dedicated server architecture to serve NASA's metadata to the Global Earth Observation System of Systems (GEOSS). CS/W is an open source and interoperable OGC standard that supports the ability to publish and search collections of descriptive information (i.e. metadata) about geospatial data, services, and related resources. The benefit that the CS/W server brings to the GCMD/IDN and the user community is that the server will offer a dedicated environment for GEOSS to perform distributed searching, ensure that access to NASA's metadata exhibits top performance, and will be monitored on a 24/7 basis. Distributed searching of metadata that originates from the GCMD/IDN will ensure that users access the most recent version of the metadata.



Dissemination of Metadata using CS/W

The CEOS/IDN will be using the GeoNetwork open source software to maintain the CS/W server. Metadata will be provided in the International Standards Organization (ISO) format, which is the metadata format supported within GEOSS. Initially, NASA metadata will be provided to GEOSS, but a mechanism will be developed that will allow anyone who maintains metadata in the IDN to share it within GEOSS for discovery. The diagram (above) highlights how metadata will be disseminated to the CS/W server for distributed search by GEOSS. This procedure will offer a "once-and-done" metadata contribution, where metadata will only have to be maintained in one location and be distributed with permission from the metadata steward. Dissemination of metadata in this manner will eliminate duplicate, outdated information in dispersed portals and will allow users to easily discover and access valuable scientific data. In addition, the model described here for distributed search using CS/W can be utilized for other collaborative metadata exchange efforts.

Atmospheric Composition (AC) Portal

Stefan Falke, Washington University/Northrop Grumman

Stefan Falke

A new collaboration has been initiated between the CEOS International Directory Network and the CEOS WGISS Atmospheric Composition Portal (AC Portal) development team. The AC Portal is being developed to support interoperability among the atmospheric composition research and applications communities using web standards for data exchange and analysis. The portal will include contextual information that is expected to guide data consumers to better understand how to use data products. It will also guide data providers to better understand how remotely sensed data are used by atmospheric composition researchers and decision makers.

The collaboration between the IDN and AC Portal includes the IDN Metadata Web Service that is designed for retrieving and publishing Earth science resources (data set descriptions, service descriptions, ancillary descriptions, keywords, etc.). The AC Portal is using the beta version of the Metadata Web Service to search and filter IDN/GCMD metadata records for inclusion in contextual metadata web pages. For example, by making a request using the IDN web service that filters all metadata records based on a sensor keyword, a contextual metadata web page for MODIS-derived atmospheric data products could include a listing of only MODIS-related data products, tools, and web services registered in the GCMD.

The filtered results from the IDN can be displayed in the AC Portal in a way that highlights the metadata that is most meaningful for the AC Portal community: for example, by providing a customized list of all GCMD metadata records that are described with parameter keyword, 'atmosphere' for a particular sensor. The information displayed on the AC Portal would including a direct link to the complete metadata records in GCMD/IDN. On the AC Portal contextual metadata page, the IDN metadata information is displayed, along with metadata retrieved from other catalogs, such as GEO Clearinghouses, GEO Community Catalogs, web portals focused on atmospheric analyses, scholarly journal articles, RSS feeds from news sources, and user-contributed content through discussion forums, wikis, and blogs.

A key characteristic of the AC Portal's use of the IDN Web Service is that the metadata retrieved are not archived in the AC Portal. The information is queried from the IDN, as it is needed so that the filtered metadata displayed in the AC Portal reflects the latest updates and version of the records in the IDN. The IDN AC Portal collaboration is in its earliest stages, but the results are anticipated to be a key feature for future AC Portal demonstrations as it continues to develop toward a targeted beta release in Fall 2010.

The AC Portal is currently in its alpha version and is accessible for review and comment at http://wdc.dlr.de/acp/.

GEO Joint Task Workshop

Martin Yapur, NOAA

On November 11 and 12, 2009, the GEO Task Teams on Data Integration and Analysis System (DA-09-02a) and Data, Metadata and Products Harmonization (DA-09-01b) held a GEO Joint Task Workshop on Alliances and Harmonization. The workshop's main objective was to explore opportunities for potential collaboration and coordination among these and other related GEO tasks, and the initiation of at least one prototype data centre alliance.

The workshop was widely attended by members and guests who provided the status of projects and activities being developed within the GEO community. A combination of individual task meetings and joint sessions facilitated an adequate forum for a better understanding of data alliances and harmonization efforts. During the opening session, Helen Wood presented a short overview of GEO activities in the U.S. (USGEO), and George Percivall described some current challenges being addressed by the GEO Architecture and Data Committee. Ken McDonald gave a presentation on behalf of the GEO Data Sharing Task Force. The discussion emphasized that an objective of a data alliance is to have full and open access to data, metadata, and products and that the success of GEO is contingent upon the implementation of the data sharing principles.

During the first session, Rick Lawford set the tone of the workshop by presenting reports of the phase I survey for DA-09-02a that had been recently completed on 11 data centers from around the world and the linkages being built with GEO Task DA -09-01a to harmonize the various data systems. The participants discussed the benefits and importance of the Alliance and made sure that the meaning of an "Alliance" was clearly defined as a social interaction that has a vision and people working on common projects/common platforms throughout the world. Professor Toshio Koike from the University of Tokyo explained that a data center alliance will create knowledge to share throughout the world.

Professor Koike also gave information about Japan's Data Integration and Analysis System (DIAS) and explained the contributions to GEOSS through data management and fusion by providing syntax interoperability, data integration, and analysis.

Particularly important to the workshop were the presentations describing the World Meteorological Organization Information System (WIS), GES-DISC (Goddard Earth Sciences Data and Information Services Center) Goddard Interactive Online Visualization and Analysis Infrastructure (GIOVANNI), the ESA-led Ground European Network for Earth Science Interoperations - Digital Repositories (GENESI-DR), and the INSPIRE program of the European Commission. Also of interest were Michael Burnett's Domain Model which drew a lot of attention and discussion from the participants, along with the presentation of John Hockaday from the Spatial Information Council for Australia and New Zealand who shared their experiences with ISO Metadata profiles and their efforts to adopt international standards.

The "Harmonization" session concentrated on reviewing the efforts underway by the Task Team members, their organizations and programs and other initiatives in the community. Yonsook Enloe presented information on WGISS's Harmonization activities and efforts emphasizing the newly created CEOS WGISS Integrated Catalog (CWIC) project, which will provide a directory and inventory search to WGISS catalog systems for satellite data. The CWIC project is also forming a design team by recruiting members from NOAA, NASA, USGS, JAXA and is anticipating European participation. The GEO Joint Task Workshop concluded successfully with a series of action items and the kick off of Professor Koike's Alliance prototype.

For more information on presentations, notes and action items please visit the WADC project website at http://www.ceos.org/wadc.

Martin Yapur
NOAA, Physical Scientist
CEO-WGISS, WGISS Infrastructure Service Project Lead (WISP)